SALMON RECOVERY FUNDING BOARD

Fifth Round 2004 Salmon Application Forms

In-Stream Passage Projects

In-Stream Diversion Projects

Non-Capital (Barrier Inventory or Design for Fish Passage or Screening) Projects

18d

February 2004

FOR USE IN THE FIFTH 2004 GRANT CYCLE ONLY

Salmon Recovery Funding Board Members

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Designee: Tom Laurie

Jeff Koenings, Director, Dept. of Fish & Wildlife
Designee: Tim Smith

Doug Sutherland, Commissioner, Dept. of Natural Resources
Designee: Craig Partridge

Doug MacDonald, Secretary, Dept. of Transportation
Designee: none

IAC Director

Laura E. Johnson

Salmon Recovery Funding Board Mission Statement:

The Board will support salmon recovery by funding habitat protection and restoration projects, and related programs and activities that produce sustainable and measurable benefits for the fish and their habitat.

Salmon Recovery Program – In-Stream Passage & Diversions Application Materials Checklist

Application Materials must be submitted for each project on the lead entity list.

Available in PRISM	✓	Item	Section
Attach		Application Authorization Memorandum	
✓		General Application Information	Section 1
✓		Applicant / Organization Information	Section 2
✓		Project Contact Information	Section 3
✓		Short Description of Project	Section 4
✓		Summary of Funding Request and Match Contribution	Section 5
✓		Application Questionnaire	Section 6
✓		Work Site Information	Section 7
✓		Permits	Section 8
✓		Salmonid Species Information	Section 9
✓		Habitat Factors Information	Section 10
✓		Property Acquisition Cost Estimate	Section 11
✓ Attach		In-stream Passage Project Data	Section 12
✓ Attach		In-stream Diversion Project Data	Section 13
✓ Attach		Non-Capital (Barrier Inventory or Design for Fish Passage or Screening) Project Data	Section 14
Attach		Project Partnership Contribution Form	Section 15
Attach		Landowner Willingness Form	Section 16
Attach		Maps (general vicinity & work site)	Applicant Creates
Attach		Project Photos	Applicant Creates
Attach		Long-Term Stewardship Plan	Applicant Creates
Attach		Project Partnership Contribution Form	Applicant Creates
Attach		Other Materials (optional)	Applicant Creates

✓ - Items with a check mark can be entered directly into PRISM. Items marked "Attach" can be attached as document in PRISM, however if this is not possible, documents can be mailed to the IAC Office.

Application Authorization Memorandum

Each organization submitting a project must complete this form.

TO: Salmon Recovery Funding Board (SRFB)
PO Box 40917
Olympia, Washington 98504-0917

THROUGH: _____
(lead entity name)

FROM: _____
(applicant name)

Through the lead entity identified above, the SRFB is hereby requested to consider this application for financial assistance for the Salmon Recovery project(s) described below and to grant funding from such State and Federal sources as may be available. This application is prepared with knowledge of and in compliance with SRFB's policies and procedures. Further, we agree to cooperate with the SRFB by furnishing such additional information as may be necessary to execute a SRFB Project Agreement and to adhere to all appropriate state and federal statutes governing grant monies under the Project Agreement. We are aware that the grant, if approved, is paid on a reimbursement basis. We agree that all application materials, including photos, slides, site drawings, maps, etc., become the property of IAC/SRFB and may be used by IAC/SRFB for education, information, or other non-commercial purposes in publications, presentations or on the IAC/SRFB web site.

Project Name(s): _____

(Attach list _____

if necessary) _____

_____

_____

_____

I/we certify that to the best of our knowledge, the data in this application is true and correct. In addition, I/we certify that the matching resources identified in the grant are committed to the above project. I/we acknowledge responsibility for supporting all non-cash commitments and donations should they not materialize.

Authorized Representative: _____
(signature) *(date)*

Printed Name and Title: _____

1. General Application Information
(ENTER ON PRISM TAB 1)

Project Name

Project Type (check one)

- ☐ **Restoration only** (In-stream Passage or In-stream Diversions)
- ☐ **Combined** (Acquisition and In-stream Passage or In-Stream Diversions)
- ☐ **Non-Capital** (Barrier Inventory or Design for Culverts or Screens)

2. Applicant / Organization Information
(ENTER ON PRISM TAB 1 – SEARCH FOR ORGANIZATION)

Organization Name

Organization Type (check one)

☐ City/Town	☐ County	☐ Private Landowner
☐ Conservation District	☐ Native American Tribe	☐ Non-profit Organization
☐ RFEG	☐ Special Purpose District	☐ State Agency

Organization Address

Address

City/Town

State, Zip

Telephone # FAX #

Internet e-mail address Website URL

3. Project Contact Information
Complete one for each contact.
(ENTER ON PRISM TAB 1 – SEARCH FOR PERSON)

☐ Mr. ☐ Ms. Title

First Name Last Name

☐ Primary Contact OR ☐ Alternate Contact

Contact Mailing Address

Address Work Telephone #

City/Town FAX #

State, Zip Internet e-mail address

4. Short Description of Project

Describe project, what will be done, and what the anticipated benefits will be in 1500 characters or less.

(ENTER ON PRISM TAB 2)

***NOTE**:* Many audiences, including the SRFB, SRFB's Review Panel and Technical Advisors, media, legislators, and the public who may inquire about your project use this description. Provide as clear, succinct and descriptive an overview of your project as possible – many will read these 1-2 paragraphs!

The description should state what is proposed. Identify the specific problems that will be addressed by this project, and why it is important to do at this time. Describe how, and to what extent, the project will protect, restore or address salmon habitat. Describe the general location, geographic scope, and targeted species/stock. This short description should be the summary of the detailed proposal set out under Evaluation Proposal, with particular emphasis on questions I-IV.

The database limits this space to 1500 characters (including spaces); any excess text will be deleted.

5. Summary of Funding Request and Match Contribution

Remember to update this section whenever changes are made to your cost estimates.
(ENTER ON PRISM TAB 3)

TOTAL PROJECT COST (A + B)
(Sponsor Match & SRFB Contribution) $_____

A. Sponsor Match Contribution (15% minimum is required for match)

Appropriation/Cash	$ _____
Bonds - Council	$ _____
Bonds - Voter	$ _____
Cash Donations	$ _____
Conservation Futures	$ _____
Donations	
Donated Equipment	$ _____
Donated Labor	$ _____
Donated Land	$ _____
Donated Materials	$ _____
Donated Property Interest	$ _____
Force Account	
Force Acct - Equipment	$ _____
Force Acct - Labor	$ _____
Force Acct - Material	$ _____
Grants*	
Grant - Federal	$ _____
Grant - Local	$ _____
Grant - Private	$ _____
Grant - State	$ _____

Total Sponsor Match Contribution $_____
15% Minimum Match Required of A. TOTAL PROJECT COST

B. SRFB Contribution (grant request) $_____
$5,000 Minimum Request

***Note, be sure to identify the name and type of any matching grant in the Application Questionnaire Section.**

Note: The Total Project Cost must equal the totals from the following Cost Estimate Sections.

6a. Application Questionnaire

All applicants must answer the following questions.
(ENTER ON PRISM TAB 8)

Cost Efficiencies
For any grants listed in the Summary of Funding Request and Match Contribution Section, are there any restrictions on the use of these grant funds? When and how long will the grant funds be available to this project?
Describe the type of donated labor (skilled and unskilled), donated equipment, and donated materials that will be used for this project, identified in the Summary of Funding Request and Match Contribution Section.
Land Ownership
What type of landowner currently owns the property? (Federal, Local, Private, State or Tribal.)
What is the current land use of the site, and its history? Describe past human uses and salmon habitat functions.
Worksite Location Data
What are the geographic coordinates of the work site(s) (in degrees, minutes and seconds)? [If you do not have them, you may leave this question blank.]
What is the township/range/section of the work site(s)?
In what county(s) is the work site(s) located? In what city, if applicable?
In what Water Resource Inventory Area(s) (WRIA) is the work site located? (Provide WRIA name and WRIA number.)
Is the work site on a stream and/or other waterbody? If yes, name the stream and/or waterbody. If the stream is a tributary of a larger stream, also name the larger stream. If you know the river mile, list it here.

Is your work site(s) located within estuarine or saltwater habitat? If so, name it. How close is it to fresh water systems? Name any other estuary or habitat adjacent to this site.
Is the work site(s) located within a park, wildlife refuge, natural area preserve, or other recreation or habitat site? If yes, name the area.

6b. Application Questionnaire

Combined Projects must answer the following questions.

Will the property proposed for acquisition involve future restoration? If yes, explain how and when restoration will occur.

6c. Application Questionnaire

Non-profit organizations must answer the following questions.

Is your organization registered as a non-profit with the Washington Secretary of State? If so, what is your Unified Business Identifier (UBI) number?
What date was your organization created?
How long has your organization been involved in salmon and habitat conservation?

7. Work Site Information

(ENTER ON PRISM TAB 9)

Driving Directions (provide directions that will enable staff to locate the project):
Current Landowner(s) of the site (name and address). Remember to complete the Landowner Willingness Form.

8. Permits

Check the appropriate boxes to indicate required and/or anticipated permits. General permit information can be obtained at the Dept. of Ecology Permit Assistance Center 1-800-917-0043 or on their Internet site http://www.ecy.wa.gov/programs/sea/pac/index.html. (ENTER ON PRISM TAB 10)

Permits	Comments Regarding Permit Status
☐ Aquatic Lands Use Authorization *(Dept of Natural Resources)*	
☐ Building Permit *(City/County)*	
☐ Clear & Grade Permit *(City/County)*	
☐ Cultural Assessment [Section 106] *(CTED-OAHP)*	
☐ Dredge/Fill Permit [Section 10/404 or 404] (*US Army Corps of Engineers)*	
☐ Endangered Species Act Compliance [ESA] *(US Fish & Wildlife/NMFS)*	
☐ Forest Practices Application [Forest & Fish] (*Dept of Natural Resources)*	
☐ Health Permit *(Dept of Health/County)*	
☐ Hydraulics Project Approval [HPA] *(Dept of Fish & Wildlife)*	
☐ NEPA *(Federal Agencies)*	
☐ SEPA *(Local or State Agencies)*	
☐ Shoreline Permit *(City/County)*	
☐ Water Quality Certification [Section 401] *(County/Dept of Ecology)*	
☐ Water Rights/Well Drilling Permit *(Dept of Ecology)*	
☐ Other Required Permits (identify)	
☐ None – No permits Required	

9. Salmonid Species Information

Identify one or more targeted Salmonid species (directly on-site, indirectly downstream or within the rearing/migration corridor) whose habitat conditions you are attempting to improve or protect. Select one Primary Species.

(ENTER ON PRISM TAB 11)

Salmonid Species	**Species Targeted** (select as many as apply)	**Primary Species** (select only one)
Bull Trout	☐	☐
Chinook	☐	☐
Chum	☐	☐
Coho	☐	☐
Cutthroat	☐	☐
Pink	☐	☐
Sockeye	☐	☐
Steelhead	☐	☐

10a. Habitat Factors Addressed

Identify one or more Habitat Factors being addressed by this Project and select one Primary Factor.

For definitions of Habitat Factors, see Manual 18b, Appendix B.

(ENTER ON PRISM TAB 11)

Habitat Factors	Project Addresses (select as many as apply)	Primary Factor (select only one)
1. Biological Processes	☐	☐
2. Channel Conditions	☐	☐
3. Estuarine and Near-shore Habitat	☐	☐
4. Floodplain Conditions	☐	☐
5. Lake Habitat	☐	☐
6. Loss of Access to Spawning and Rearing Habitat	☐	☐
7. Riparian Conditions	☐	☐
8. Streambed Sediment Conditions	☐	☐
9. Water Quality	☐	☐
10. Water Quantity	☐	☐

10b. Species/Habitat Factors Information Sources

For Species Information provide the source and indicate if the species listed are directly on-site at some point in their life stage (i.e., SaSI, WDFW Stream Catalog, Stream Survey/Field Observation, Limiting Factors Distribution Maps.

For Habitat Factors Information list the study/report and date identifying the habitat factors for your project (i.e., SaSI, limiting factors analysis, watershed analysis, other assessments or studies).

(ENTER ON PRISM TAB 11)

Study Name	Author	Date

11. Property Acquisition Cost Estimate

This form is needed for combination (Acquisition and Restoration) projects.

11. Property Acquisition Cost Estimate

ACQUISITION includes the purchase of land in fee title, or lesser interests such as conservation easements or other property rights. Conservation easements must be in perpetuity. The acquisition policy is set out in Manual #3, located on IAC Web Page http://www.iac.wa.gov/srfb/docs.htm. Use this form for combination (acquisition and restoration) projects only. **(ENTER ON PRISM TAB 4)**

	Property	Property	Property	Total Properties
Property Name				Leave shaded
Date to be Acquired				areas blank
Acreage to be Acquired				
VALUE DETERMINATION TYPE	(Check one for each property)			
Appraised/reviewed value	☐	☐	☐	
Estimate of value	☐	☐	☐	
Letter of opinion	☐	☐	☐	
PURCHASE TYPE	(Check one for each property)			
Fee ownership (land/improvements)	☐	☐	☐	
Less than fee ownership	☐	☐	☐	
ACQUISITION COST ITEMS	(Complete all that apply)			
Applicable taxes				
Appraisal and review				
Baseline inventory				
Closing				
Demolition				
Easement – access				
Easement – conservation				
Easement – other				
Easement – trail				
Fencing				
Hazardous substances assessment				
Improvements & structures				
Land				
Noxious weed control				
Recording fees				
Relocation				
Rights – agriculture				
Rights – development				
Rights – mineral				
Rights – other				
Rights – timber				
Rights – water				
Signing				
Survey				
Title reports/insurance				
Wetland delineation				
Column Sub-Total				
Admin Costs (5% of Sub-Total)				
TOTAL ACQUISITION COSTS				

The remaining pages are project type specific. You do not need to complete every page. Select ONE project type that best fits your project and only complete those forms.

The project types are:

12. In-Stream Passage Projects

12a. Goal and Objective and Measurements
In-Stream Passage

Select <u>one</u> goal and <u>one</u> objective that best fits your project and respond all to the measurements for that goal and objective.

(ENTER GOAL AND OBJECTIVE ON PRISM TAB 2; SAVE, THEN ENTER MEASUREMENT RESPONSES ON PRISM TAB 6)

Goal: The goal of the project is to connect isolated habitat to increase the range and distribution of salmon. **Objective:** The objective of the project is to increase access to areas blocked by human-caused impediments.	☑
Measurement: **Average stream width, in feet, upstream of barrier?** [Report the average width of the stream upstream from the barrier.]	_____ Average width in feet
Measurement: **Length of stream made accessible by the removal of barriers other than culverts?** [The miles of stream proposed and actually opened to improved salmon production upstream of the barrier(s) other than culverts.]	_____ Miles
Measurement: **Length of stream made accessible for passage of salmon species by the improvement or removal of culverts?** [The miles of stream proposed for and actually made accessible for passage of salmon species by upgrading or removing culverts.]	_____ Miles
Measurement: **Number of fish passage blockages removed or improved?** [There may be more than one blockage per project. Report a count of all blockages that are proposed for removal or improvement and those that are actually removed or improved as part of this project.]	_____ # of Blockages
Measurement: **Percent rearing habitat opened up?** [Report the percent of rearing habitat that is being opened up as a result of this project.]	_____% Rearing
Measurement: **Percent spawning habitat opened up?** Report the percent of spawning habitat that is being opened up as a result of this project.]	_____% Spawning

12b. In-Stream Passage Cost Estimate

IN-STREAM PASSAGE includes those items that affect or provide fish migration up and downstream to include road crossings (bridges and culverts), barriers (dams, log jams), fishways (ladders, chutes, pools), and log and rock weirs.

Complete only items that apply to your project.
TOTAL COST must include the SRFB and Sponsor's Match Contribution.
Use only whole dollar amounts.
(ENTER ON PRISM TAB 5)

Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Bridge	Each			Length/width	
Carcass placement	Linear ft			Describe	
Culvert improvements	Each			Describe	
Dam removal	Each			Describe	
Debris removal	Each			Optional	
Diversion dam	Each			Size/material	
Fishway	Each			Length/width	
Log control (weir)	Each			Optional	
Mobilization	Lump sum			Optional	
Permits	Lump sum			Optional	
Rock control (weir)	Each			Optional	
Roughened channel	Linear ft			Describe	
Signage	Each			Describe	
Site maintenance	Lump sum			Describe	
Traffic control	Lump sum			Describe	
Utility crossing	Lump sum			Describe	
Water management	Lump sum			Describe	
Work site restoration	Acres			Describe	
Sales Tax					
Sub-Total					
Architecture, Engineering, & Admin. (30% of Sub-Total)					
TOTAL COST					

Purchase of equipment is not an allowable cost.

12c. Evaluation Proposal
In-Stream Passage

Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.

Up to eight pages may be submitted for each project evaluation proposal.

(SUBMIT INFORMATION VIA PRISM ATTACHMENT PROCESS OR ON PAPER)

For prioritization questions or technical assistance, contact Dave Caudill at Department of Fish and Wildlife (WDFW) at (360) 902-2486 or at caudidsc@dfw.wa.gov. For engineering design questions or technical assistance, contact Patrick Powers at WDFW at (360) 902-2546 or at powerpdp@dfw.wa.gov.

NOTE: this information, along with information provided in Section 12d-WDFW Fish Passage Data Forms will be evaluated by WDFW and comments forwarded to the Advisory Panel for consideration.

I. BACKGROUND

Describe the fish resources (number of species or unique populations), the current habitat conditions, and other current and historic factors important to understanding this project. Be specific—avoid general statements. When possible, document your sources of information by citing specific studies and reports.

II. PROBLEM STATEMENT

Concisely describe the passage problem (outfall, velocity, slope, etc). Describe the current barrier (age, material, shape, and condition). Is the structure a complete or partial barrier? Describe the amount and quality of habitat to be opened if the barrier is corrected.

When possible, document your sources of information by citing specific studies, reports, or personal communication.

III. PROJECT OBJECTIVES

List the project's objectives. Objectives are statements of specific outcomes that typically can be measured or quantified over time. Objectives are more specific than goals (visions of the desired future condition) and less specific than tasks (the specific steps that would be taken to accomplish each of the objectives). For example, the objectives of a barrier removal project might be to provide fish passage, restore natural stream function, and riparian revegetation in the treated area. Explain how achieving the objectives will address and help solve the problem identified in II above.

IV. PROJECT APPROACH

- ▷ Has the project received a Priority Index (PI) Number? If yes, provide the PI number and indicate the method used: Physical Survey, Reduced Sample Full Survey, Expanded Threshold Determination, or WDFW Generated PI (list source, such as a study or inventory).
- ▷ Identify if there are additional fish passage barriers downstream or upstream of this project.

- ▷ Briefly describe the location of the project within the context of the watershed (estuary, main stem, tributary, etc) and the life cycle stage(s) affected.
- ▷ List the individuals and methods used to identify the project and its location.
- ▷ Describe the project design and how it will be implemented.
- ▷ Explain how the project's cost estimates were determined.
- ▷ Describe other approaches and opportunities that were considered to achieve the project's objectives.
    - List project partners. When appropriate, include a letter from each participating partner briefly outlining its role and contribution to the project. (See Section 15 for a sample format.)
    - List all landowner names. Include a signed form from each landowner acknowledging their property is proposed for SRFB funding consideration. (See Section 16 for a sample format.)
- ▷ Describe your approach to the long-term stewardship of the facility.
- ▷ When known, identify the staff, consultants, and subcontractors that will be designing and implementing the project, including their names, qualifications, roles and responsibilities. If not yet known, describe the selection process.

V. TASKS AND TIME SCHEDULE

List and describe the major tasks and time schedule you will use to complete the project. Describe your experience with managing this type of project.

VI. CONSTRAINTS AND UNCERTAINTIES

State any known constraints or uncertainties that may hinder successful completion of the project. Identify any possible problems, delays, or unanticipated expenses associated with project implementation. Explain how you will address these constraints.

12d. Barrier Information Forms - Cover Sheet

Purpose of Forms

The purpose of the Barrier Evaluation (BEF) and Expanded Barrier Evaluation (EBEF) forms are to document information on fish passage barriers submitted to Lead Entities and the Salmon Recovery Funding Board for funding consideration. An updated version of the *Design of Road Culverts for Fish Passage Manual* is available through the WDFW website at http://wdfw.wa.gov/hab/engineer/cm/. The WDFW technical staff is available to provide assistance to applicants. For barrier evaluation questions contact Dave Caudill at WDFW (360) 902-2486 or caudidsc@dfw.wa.gov. For engineering design questions or technical assistance contact Patrick Powers at WDFW (360) 902-2546 or powerpdp@dfw.wa.gov. The SRFB strongly encourages applicants to take advantage of this service.

In an effort to simplify the information being collected and make it valued added for the applicant the SRFB has elected to try a new approach by utilizing the same but slightly modified forms from the Family Forest Fish Passage Program. These forms are divided up into basically three steps: 1) Barrier determination – is the structure a fish passage barrier and is the stream fish bearing. This initial determination is captured on the Barrier Evaluation Form (BEF). 2) Background information – if the site is determined a barrier and the stream fish bearing then utilized the Expanded Barrier Evaluation Form to capture detailed information including fish species and use, site information, upstream and downstream channel conditions, and potential habitat gain if the barrier was corrected. 3) Site Visit Documentation and Correction Alternative – This step will help capture important information from site observations by developing conceptual alternatives and rough cost estimate(s).

No substitute for local knowledge:

Your help in providing information on a project is greatly appreciated. There is no better information source than a landowner, applicant, or local habitat biologist who lives or works in a particular watershed. The WDFW will develop a site map of each project site listing the species utilizing the stream system, the amount of habitat opened above the barrier the distance to the next known man-made barrier or natural barrier gradient break. If you would like this information for completing your application please contact your SRFB Project Manager.

Form Descriptions

Barrier Evaluation Form (BEF) - Provides the basic information for identifying the location, landowner, evaluator contact information, and the barrier measurements. The three key pieces of information are: 1) Is the stream fish bearing (anadromous or resident) 2) Is the structure a fish passage barrier (determined by the Washington State fish passage criteria) and 3) Landowner identification. The evaluator should have professional training to determine if the structure is a barrier and if the stream is fish bearing.

Expanded Barrier Evaluation Form (EBEF)

Part 1 – Provides background information on the local watershed. This includes upstream and downstream barriers, fish use at the site, and the description of the habitat that will be made available by the barrier correction.

Part 2 – Site visit documentation and correction alternatives. This section should be filled out by a professional field biologist or engineer with experience in fish passage design and implementation. The cost estimates and correction option is a rough estimate for the purpose setting funding priorities. Final design and implementation are subject to permitting requirements.

Instructions for Developing the Barrier Evaluation Forms – Following each form are instructions explaining the detail needed. If you have questions please contact your SRFB Project Manager or the WDFW at the numbers listed above.

12e. Fish Passage: Barrier Evaluation Form

Location Information

GPS Location: In decimal degrees using 9 decimal places. State Plane South, WGS84	Latitude:	Longitude:	
¼ Section:	Section:	Township:	Range: □ East □West
County:		Parcel:	
Stream Name:		WRIA#:	
Tributary To:		Stream #:	
Driving Directions:			

Landowner Information

Landowner Name:			Landowner Agent:		
Mailing Address:			Mailing Address:		
City:	State:	Zip:	City:	State:	Zip:
Phone:	Fax:		Phone:	Fax:	
Cell:	Email:		Cell:	Email:	

Investigator

Investigator Name:		Affiliation:	
Mailing Address:			
City:		State:	Zip:
Phone:	Fax:	Cell:	Email:

Barrier Measurements (in meters)

Is the stream fish bearing? □ Yes □ No □ Unknown Species, if known _____

Is this culvert a fish passage barrier? □ Yes □ No □ Unknown □ Level B needed

Level A analysis completed: □ Yes □ No If yes, attach. If no, complete below:

Shape:	Material:	Span/Diam:	Rise:	Water depth in culvert:	Length:

Streambed material throughout culvert: □ Yes □ No □ Unknown	Toe width (outside of culvert influence):
Outfall drop:	Culvert slope(%):
How did you calculate culvert slope? □ Handheld laser level □ Transit □ Other (describe)	
Road width:	Road fill height over top of culvert (D.S. end):
Velocity:	Apron: □ None □ Upstream □ Downstream □ Both
Problem with culvert: Outfall drop/Slope/Velocity/Depth:	Percent Passability: □ 0% □33% □67% □ 100%
Comments:	

Attachments

□ Photos □ Level A Assessment □ Site Map □ Other □ Additional Comments

Instructions for Developing the Barrier Evaluation Form

Purpose of Form: Barrier Evaluation Form
Provides the basic information for identifying the location, landowner, evaluator contact information, and the barrier measurements. The three key pieces of information are: 1) Is the stream fish bearing (anadromous or resident) 2) Is the structure a fish passage barrier (determined by the Washington State fish passage criteria) and 3) Landowner identification. The evaluator should have professional training to determine if the structure is a barrier and if the stream is fish bearing.

How to fill out this form
Following are definitions, descriptions, and standards for information to be included in the Barrier Evaluation Form. This form has five sections, which describe location, landowner, investigator, barrier measurements, and attachments.

General Location Information
This section describes the barrier location including GPS coordinates in decimal degrees using state plane coordinates, Washington South NAD27, stream name, and detailed driving directions to the site.

Landowner Information
This section provides landowner contact information. If the landowner is working through a private consultant or other representative, please provide this contact information.

Investigator Information
Include the contact information of the person preparing the evaluation and making the initial barrier determination.

Barrier Measurements
Level A Analysis – This refers to the Washington State Department of Fish & Wildlife protocol described in ***Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual***, WDFW, August 2000.

Culvert Shape – Describe culvert shape (circular, rectangular, arch, elliptical, bottomless, or other).

Culvert Material – Describe culvert material (corrugated metal, concrete, smooth plastic or metal).

Culvert Size -

- Diameter: indicate diameter for circular culverts.
- Rise: indicate the dimension from culvert invert to crown of non-circular culverts.
- Span: indicate the maximum width of culvert for non-circular culverts.

Culvert Length - Indicate culvert length including aprons, if present.

Outfall Drop – Measured water surface to water surface.

Culvert Slope - Use standard survey methods to determine the horizontal length of the culvert including aprons, and the difference between its invert elevations expressed in a percent slope. If slope varies within culvert, provide the maximum reading. Describe the slope from the surveyed profile. Attach profile if available. Indicate which tool was used in determining culvert slope (Laser level, transit, other). To calculate % slope of the culvert use the following formula: (Upstream Invert Elevation – Downstream Invert Elevation / Culvert Length) * 100.

Stream Bed Material Within Culvert - Indicate whether streambed material is present inside the culvert.

Toe Width – The average width of the streambed (toe width). Measured outside the influence of the culvert. Used in conjunction with the culvert span to calculate Culvert Span to Streambed Width Ratio.

Road Width – Measurement should include shoulders.

Road Fill - Measure height of material from top of culvert to top of fill at downstream end.

Velocity – Field estimate of water velocity through the culvert in meters per second. Use flow meter or three-chip method. Informational. Optional.

Percent Passability – Based on professional judgment. Please discuss details in comments if a partial barrier.

Attachments. To aid in the evaluation and understanding of the barrier, please attach labeled photographs of the culvert site, including the culvert outfall and any other representative locations, with scale provided. Also attach a 1:12,000 topographic map of the project site, and the Level A assessment, and culvert survey profile, if available.

Comments: Provide any additional information that should be considered such as: culvert condition, fish use/observation, and site conditions.

12f. Fish Passage: Expanded Barrier Evaluation Form

Project Name: Sponsor:

Part 1. Background Data Assessment

Attachments:

- ☐ Barrier Evaluation Form for project site
- ☐ Map – Basin area map showing fish use, other known barriers, gradient and basin area. (WDFW generated)
- ☐ Surrogate PI #_____ (attach) ☐ PI# _____ (attach if available)

Watershed Information

Basin area: _____ Amount of habitat which would be made available upstream: _____(m)

Has a barrier inventory been conducted in the watershed? ☐ Yes ☐ No If yes, list source and date completed:

Are there downstream barriers? ☐ Yes ☐ No If yes, describe. List source; use separate sheet if necessary.

Are there upstream barriers? ☐ Yes ☐ No If yes, describe. List source; use separate sheet if necessary.

Has the stream been walked? ☐ Yes ☐ No If yes, information source:

Fish Species/Use

Mapped Species: ☐ bull trout/Dolly ☐ Chinook ☐ chum ☐ coho ☐ cutthroat ☐ pink ☐ resident trout ☐ sockeye ☐ steelhead

Information source:

Current fish use downstream and upstream from barrier (include source of information):

What species and life history stages might use the habitat made accessible by the project?:

Provide a qualitative description of habitat that will be made available by barrier correction, if available. Include source of information:

Part 2. Site Visit Documentation & Correction Alternatives

Site Information

Date of visit:	Recent precipitation:

☐ Photographs attached of barrier inlet and outfall, upstream habitat, downstream habitat, and road.

Bankfull width (outside of influence from the culvert):

Stream flow: ☐ Perennial ☐ Intermittent ☐ Unknown Source of information:

Flow conditions: ☐ low ☐ moderate ☐ high	Utilities crossing: ☐ Yes ☐ No ☐ Unknown

Road description/condition (county road, private driveway, access road):

Fish observed on site:

Upstream Habitat/Channel

Approximate channel slope: _____% (outside of culvert influence)

Dominant substrate: ☐ sand (<.20") ☐ gravel (.20"–3") ☐ cobble (3"-12") ☐ boulder (>12") ☐ bedrock

Additional upstream information, habitat description, other site conditions or concerns:

Downstream Habitat/Channel

Approximate channel slope:_____% (outside of culvert influence)

Additional downstream information, habitat description, other site conditions or concerns:

Correction Alternatives

Alternatives to consider – *Using your best professional judgment provide one, two, or even three alternatives to consider. Please recognize landowner desires or concerns, potential sponsor and their capabilities, and state fish passage requirements. See example on the following pages.*

Alternative 1 –

Alternative 2 –

Alternative 3 -

Continued next page

Continued from previous page

General recommendation *– Provide a one or two paragraph recommendation for this site. Note any special concerns discovered during the site visit. In some situations a preliminary design may have already been completed or design concepts generated. If this is the case please include this information.*

Please see the example in the next section

Rough cost estimate* - The purpose of the rough cost estimate is to provide a project specific estimate to establish a funding level.

Culvert Replacement – Alternative #___

Permitting/Oversight:	$
Engineering:	$
Materials:	$
Construction:	$
Total	**$**

* This estimate is provided as a rough approximation of project costs; actual costs will vary depending on specifications identified during project design.

Notes:

Instructions for developing the Expanded Barrier Evaluation Form

The purpose of this form is to provide additional information on potential high priority barriers for funding consideration by the Salmon Recovery Funding Board. The form is broken into two parts:
Part 1 – Provides background information on the local watershed. This includes upstream and downstream barriers, fish use at the site, and the description of the habitat that will be made available by the barrier correction.
Part 2 – Site visit documentation and correction alternatives. This section should be filled out by a professional field biologist or engineer with experience in fish passage design and implementation. The cost estimates and correction option is a rough estimate for the purpose setting funding priorities. Final design and implementation are subject to permitting requirements.

Part 1. Background Data Assessment

This portion of the EBEF is to be completed in the office using available information. It will be used to make an initial assessment of the potential benefit of correcting the barrier based primarily on the number of fish species using the stream, and the amount of habitat which would be made accessible.

Attachments

- *Initial Barrier Evaluation Form* – This is the completed form previously submitted for the site.
- *Maps* – The Fish Passage Team will coordinate the development of a standard site map along with a larger scale watershed map.
- Surrogate PI # - *This is the map-based Priority Index calculated for this project based on the EBEF data.*
- PI # - *A Priority Index should be provided if one is available.*

Watershed Information

- *Basin area* - This is the area upstream from the project which is drained by this tributary.
- *Barrier inventory* – This indicates whether a barrier inventory has been conducted in the area.
- *Known Upstream and Downstream Barriers* - The purpose of this section is to provide documentation on the known upstream and downstream barriers. If barriers are present, indicate whether they are partial or total, if known. Discuss whether they are scheduled for correction, and if so, in what time frame. List the source of information.

Fish Species/Use:

- *Mapped species* – Check the box next to the species that are documented as utilizing the habitat. Include source of information.
- Current fish use – *Describe any other available information regarding fish use upstream and downstream from the barrier; include information source.*
- *Potential fish use* – Describe to the extent known which fish species and life stages would be expected to use the habitat made accessible by the project.
- *Qualitative habitat description* – Describe habitat quality upstream from the project to the extent known, and include information source.

Continued on next page

Continued from previous page

Part 2. Site Visit Documentation and Correction Alternatives

This portion of the EBEF will be completed for those projects which are determined to be of potential high benefit to fish resources based on the information provided in Part 1. The completed EBEF will be used by evaluators to understand the project being proposed.

Site Information

- *Date of observation* – This is the date of the field visit.
- *Photographs* – The Fish Passage Team in coordination with local staff will photo document the site. Standard photos will include the barrier outfall and inlet, upstream habitat, downstream habitat, and road. Pictures should be clearly labeled describing what the photo is showing, and include scale.
- *Recent precipitation* – Describe recent weather events which may affect observed stream flow.
- *Bankfull width* - For the purpose of culvert design, the channel bed width is defined as the width of the bankfull channel. The bankfull channel is defined as the stage at which water just begins to overflow into the active flood plain. Bankfull width then requires a floodplain or a bench that is not present in many channels. In those cases, bankfull channel is determined by features that do not depend on a flood plain similar to those used in the description of active channel and ordinary high water (generally the lowest point at which perennial vegetation grows on the streambank).
- *Stream flow* – Provide a general assessment from local knowledge as to whether the stream flow at the site is perennial or intermittent and note whether it is spring fed.
- *Flow conditions – This refers to the flow observed on the day of the visit.*
- *Road description/condition* – Provide a brief description of the road surface, use, condition, etc..

***Fish observed on site* – Note any species and life stage of fish observed on site at the time of the field visit. This is a visual check of the stream.**

Upstream Habitat:

- *Approximate channel slope* – This is measured outside of the culvert influence.
- *Streambed material* - Identify the size and type of bed material present. Categorize it as: fines, sand, gravel, cobbles, boulders, bedrock etc..
- *Additional information* – Provide any additional upstream information that may be important to the project.

Example of a Correction Alternative – Approximate level of detail

Correction Alternatives

Alternatives to consider 1,2,3,.....etc....

Example

Alternative 1 – Abandon the spur road and pull the barrier culvert. This would be the least expensive of the options but would eliminate road access to approximately 12 acres on the south side of the property. The landowner is not interested in this.

Alternative 2 – Replace the existing barrier culvert with a round pipe 6 feet in diameter using the no slope option. Actual pipe size would be determined during the design process but based on the stream size and other factors a pipe diameter in this range should meet fish passage requirements.

General recommendation

This project is relatively straightforward. The stream is low gradient, less than 1.5 % throughout the reach. The stream is spring fed flowing year-round and supports a healthy population of coho and sea-run cutthroat. During the design process care should be taken in calculating high fish passage flow to select the proper culvert size and type that meets fish passage criteria. This is a relative large basin area for the size of the stream. During the site visit there was some evidence of high peak flows.

Basic engineering for the site is recommended. This should include a site plan and profile with preliminary culvert alignment, grade, size and shape, water surface profiles, road section, etc.. Stream slope calculations, Manning's equation calculations for low, high flow, 100 year flood for proposed culvert and stream sections should be included.

Rough cost estimate*:

Culvert Replacement – Alternative #2	
Permitting/Oversight:	$ 5,000
Engineering:	$ 4,500
Materials:	$ 10,500
Construction:	$ 23,000
Total	**$ 43,000**

* This estimate is provided as a rough approximation of project costs; actual costs will vary depending on specifications identified during project design.

13. In-Stream Diversion Projects
(surface water and screening projects)

13a. Goal and Objective and Measurements
In-Stream Diversions

Select <u>one</u> goal and <u>one</u> objective that best fits your project and respond all to the measurements for that goal and objective.

(ENTER GOAL AND OBJECTIVE ON PRISM TAB 2; SAVE, THEN ENTER MEASUREMENT RESPONSES ON PRISM TAB 6)

Goal: The goal of the project is to increase and/or maintain adequate flows for wild salmon. **Objective:** The objective of the project is to reduce waste of appropriated water.	☐
Measurement: Amount of water returned to the stream? [The flow of water returned to the stream (not including water that is maintained in the stream).]	_____Flow returned
Goal: The goal of the project is to reduce sources of wild salmon mortality caused by water use. **Objective:** The objective of the project is to reduce salmon mortality caused by water withdrawal and diversions.	☐
Measurement: Amount of water returned to the stream? [The flow of water returned to the stream (not including water that is maintained in the stream).]	_____Flow returned
Measurement: Length of stream section treated? [Report the length of stream section treated by the project. Meander measurement of portion of stream proposed for treatment and treated by the project, counting one side of stream only.]	_____ Miles
Measurement: Number of screens installed? [A total count of screens proposed for installation and actually installed, recognizing that a project may install more than one screen.]	_____ Screens
Measurement: Quantity of water protected by screens (duty)? [The amount of water proposed for protection and actually protected, as stated in the water right in terms of acre-feet per year.]	_____ Quantity
Measurement: The flow rate of water diverted? [The flow rate at the screened diversion(s) from the water right.]	_____ cfs

13b. In-Stream Diversions Cost Estimate - Restoration

IN-STREAM DIVERSION includes those items that affect or provide for the withdrawal and return of surface water to include the screening of fish from the actual water diversion (dam, headgate), the water conveyance system (both gravity and pressurized pump), and the by-pass of fish back to the stream.

Complete only items that apply to your project.
TOTAL COST must include the SRFB and Sponsor's Match Contribution.
Use only whole dollar amounts.
(ENTER ON PRISM TAB 5)

Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Diversion dam	Each			Size/material	
Fish by-pass	Each			Describe	
Fish screen (gravity)	Each			Size/material	
Fish screen (pump)	Each			Size/material	
Headgate	Each			Optional	
Log Control (weir)	Each			Optional	
Permits	Lump sum			Optional	
Pipes & ditches	Linear ft			Material/length	
Rock control (weir)	Each			Optional	
Signage	Each			Describe	
Site maintenance	Lump sum			Describe	
Work site restoration	Acres			Optional	
Sales Tax					
Sub-Total					
Architecture, Engineering, & Admin. (30% of Sub-Total)					
TOTAL COSTS					

Purchase of equipment is not an allowable cost.

13c. Evaluation Proposal
In-Stream Diversions

Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.

Up to eight pages may be submitted for each project evaluation proposal.

(SUBMIT INFORMATION VIA PRISM ATTACHMENT PROCESS OR ON PAPER)

For questions or technical assistance, contact Pat Schille, Department of Fish and Wildlife (WDFW) at (509) 575-2735 or schilpcs@dfw.wa.gov. NOTE: this information will be evaluated by WDFW with their comments forwarded to the Advisory Panel for consideration.

I. BACKGROUND

Describe the fish resources (number of species or unique populations), the current habitat conditions, and other current and historic factors important to understanding this project. Be specific—avoid general statements. When possible, document your sources of information by citing specific studies and reports.

II. PROBLEM STATEMENT

State the nature, source, and extent of the problem that this project will address and help solve. When possible, document your sources of information by citing specific studies and reports. If known, provide the maximum legal diverted flow. If the diversion is equipped with a fish screen, provide details of why it is not functioning properly from a fish protection perspective (entrainment or impingement).

III. PROJECT OBJECTIVES

List the project's objectives. Objectives are statements of specific outcomes that typically can be measured or quantified over time. Objectives are more specific than goals (visions of the desired future condition) and less specific than tasks (the specific steps that would be taken to accomplish each of the objectives). For example, the objectives of an in-stream diversion project might be to reduce salmon mortality caused by water withdrawal. Explain how achieving the objectives will address and help solve the problem identified in II above.

IV. PROJECT APPROACH

- ▷ Has the project received a Screening Priority Index (SPI) Number? If yes, provide the SPI and indicate if WDFW developed the SPI. Refer to the WDFW Fish Passage Barrier and Screening Assessment and Prioritization http://wdfw.wa.gov/hab/engineer/fishbarr.htm.
- ▷ Is this a pump diversion? If yes, what is the flow of the diversion in gallons per minute (gpm). How was the flow determined (water right; meter – system meter; or calculated from irrigation system components)?
- ▷ For the gravity diversion, what is the flow in gallons per minute (gpm). How was the flow determined (water right; or direct measurement during peak spring/summer diversion using a flow meter)?
- ▷ If it is not possible to determine the flow, then provide the bank-full, cross-sectional area of the ditch, measured 100-300 feet downstream of the Point of Diversion (see page 25 of the WDFW Fish Passage Barrier and Screening Assessment and Prioritization Manual (August 2000).

- ▷ Briefly describe the location of the project within the context of the watershed (estuary, main stem, tributary, etc) and the life cycle stage(s) affected.
- ▷ List the individuals and methods used to identify the project and its location.
- ▷ Describe the project design and how it will be implemented.
- ▷ Explain how the project's cost estimates were determined.
    - Describe other approaches and opportunities that were considered to achieve the project's objectives.
    - List project partners. When appropriate, include a letter from each participating partner briefly outlining its role and contribution to the project. (See Section 12d for a sample format.)
    - List all landowner names. Include a signed form from each landowner acknowledging their property is proposed for SRFB funding consideration. (See Section 16 for a sample format.)
    - Describe your approach to the long-term stewardship of the facility.
    - When known, identify the staff, consultants, and subcontractors that will be designing and implementing the project, including their names, qualifications, roles and responsibilities. If not yet known, describe the selection process.

V. TASKS AND TIME SCHEDULE

List and describe the major tasks and time schedule you will use to complete the project. Describe your experience with managing this type of project.

VI. CONSTRAINTS AND UNCERTAINTIES

State any known constraints or uncertainties that may hinder successful completion of the project. Identify any possible problems, delays, or unanticipated expenses associated with project implementation. Explain how you will address these constraints.

14. Non-Capital (Barrier Inventory or Design for Fish Passage or Screening) Projects

14a. Goal and Objective and Measurements
Barrier Inventory or Design for Fish Passage or Screening

Select <u>one</u> goal and <u>one</u> objective that best fits your project and respond all to the measurements for that goal and objective.

(ENTER GOAL AND OBJECTIVE ON PRISM TAB 2; SAVE, THEN ENTER MEASUREMENT RESPONSES ON PRISM TAB 6)

Goal: The goal of the project is to increase and / or maintain adequate flows for wild salmon. **Objective:** The objective of the project is to reduce over appropriation of water in salmon bearing streams.	
Goal: The goal of the project is to increase and improve information to help select projects that have a high certainty and benefit. **Objective:** The objective of the project is to determine project siting, feasibility, design, or implementation. **Objective:** The objective of the project is to fill data gaps regarding fish barriers..	☐ ☐
Measurement: Does the plan/assessment identify necessary actions needed to meet goals? [Does the plan/assessment identify actions needed to meet goals?]	☐ **Yes** ☐ **No**
Measurement: Does the plan/assessment identify/prioritize factors limiting production? [Does the plan/assessment identify/prioritize specific factors limiting the production of populations and ESUs or conservation opportunities at the watershed scale?]	☐ **Yes** ☐ **No**
Measurement: Does the plan/assessment incorporate biological goals? [Does the plan/assessment incorporate biological goals consistent with State or Tribal conservation plans or Technical Recovery Team recommendations?]	☐ **Yes** ☐ **No**

14b. Project Cost Estimate

Barrier Inventory or Design for Fish Passage or Screening

(ENTER ON PRISM TAB 5)

ASSESSMENTS AND STUDIES may include feasibility studies; channel migration studies; reach-level, near-shore, and estuarine assessments; and inventories such as barrier, unscreened water diversions; and landslide hazard. A feasibility study could include assessing the willingness of landowners to agree to allow access to their land for a habitat project or to consider selling a conservation easement. The results of proposed assessments must directly lead to identification, siting, or design of habitat protection or restoration projects or fill a data gap identified as a priority in a lead entity strategy.

Complete only items that apply to your project.
TOTAL COST must include the SRFB and Sponsor's Match Contribution.
Use only whole dollar amounts.

Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Communications					
Advertising	Lump sum			Optional	
Communications – other	Lump sum			Optional	
Postage	Lump sum			Optional	
Printing, binding, copying	Lump sum			Optional	
Telephone	Lump sum			Optional	
Equipment					
Equipment – other	Lump sum			Describe	
Insurance					
Insurance – other	Lump sum			Describe	
Liability insurance	Lump sum			To/From	
Permits					
Permits	Lump sum			Optional	
Professional Services					
Consultant(s)	Lump sum			Optional	
Mapping/GIS	Lump sum			Optional	
Photography	Lump sum			Optional	
Professional services – other	Lump sum			Optional	
Surveying	Lump sum			Optional	
Rentals & Leases					
Meeting rooms	Lump sum			Optional	
Rentals & leases – other	Lump sum			Describe	
Vehicle lease	Lump sum			Optional	

Barrier Inventory or Design for Fish Passage or Screening Project Cost Estimate (Continued)

Item	Unit	Qty.	Total Cost	Description Needed	Description (60 characters max.)
Salaries & Benefits					
Salaries & benefits - other	# of FTE's			Title	
Salaries & benefits - other	# of FTE's			Title	
Salaries & benefits - other	# of FTE's			Title	
Salaries & benefits - other	# of FTE's			Title	
Salaries & benefits - other	# of FTE's			Title	
Supplies					
Computer software	Lump sum			Describe	
Forms, maps, stationery	Lump sum			Optional	
General supplies	Lump sum			Optional	
Publications	Lump sum			Optional	
Transportation/Travel					
Mileage	Rate			Miles	
Per diem	Each			Optional	
Transportation/travel – other	Lump sum			Describe	
Vehicle use	Rate / month			Optional	
Sales Tax					
TOTAL COSTS					

14c. Evaluation Proposal
Passage or Screening Design/Feasibility

Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.

Up to eight pages may be submitted for each project evaluation proposal.

(SUBMIT INFORMATION VIA PRISM ATTACHMENT PROCESS OR ON PAPER)

For prioritization questions or technical assistance, contact Dave Caudill at Department of Fish and Wildlife (WDFW) at (360) 902-2486 or at caudidsc@dfw.wa.gov. For engineering design questions or technical assistance, contact Patrick Powers at WDFW at (360) 902-2546 or at powerpdp@dfw.wa.gov.

NOTE: this information, along with information provided in Section 12d-WDFW Fish Passage Data Forms will be evaluated by WDFW and comments forwarded to the Advisory Panel for consideration.

I. BACKGROUND

Describe the fish resources (number of species or unique populations), the current habitat conditions, and other current and historic factors important to understanding this project. Be specific—avoid general statements. When possible, document your sources of information by citing specific studies and reports.

II. PROBLEM STATEMENT

Concisely describe the passage problem (outfall, velocity, slope, etc). Describe the current barrier (age, material, shape, and condition). Is the structure a complete or partial barrier? Describe the amount and quality of habitat to be opened if the barrier is corrected.

When possible, document your sources of information by citing specific studies, reports, or personal communication.

III. PROJECT OBJECTIVES

List the project's objectives. Objectives are statements of specific outcomes that typically can be measured or quantified over time. Objectives are more specific than goals (visions of the desired future condition) and less specific than tasks (the specific steps that would be taken to accomplish each of the objectives). For example, the objectives of a barrier removal project might be to provide fish passage, restore natural stream function, and riparian revegetation in the treated area. Explain how achieving the objectives will address and help solve the problem identified in II above.

IV. PROJECT APPROACH

- ▷ Has the project received a Priority Index (PI) Number? If yes, provide the PI number and indicate the method used: Physical Survey, Reduced Sample Full Survey, Expanded Threshold Determination, or WDFW Generated PI (list source, such as a study or inventory).
- ▷ Identify if there are additional fish passage barriers downstream or upstream of this project.

- ▷ Briefly describe the location of the project within the context of the watershed (estuary, main stem, tributary, etc) and the life cycle stage(s) affected.
- ▷ List the individuals and methods used to identify the project and its location.
- ▷ Describe the project design and how it will be implemented (complete Section 15a of this application).
- ▷ Explain how the project's cost estimates were determined.
- ▷ Describe other approaches and opportunities that were considered to achieve the project's objectives.
    - List project partners. When appropriate, include a letter from each participating partner briefly outlining its role and contribution to the project. (See Section 15 for a sample format.)
    - List all landowner names (if the assessment covers large stream reach or an entire subbasin, then the landowner willingness forms are not required). Include a signed form from each landowner acknowledging their property is proposed for SRFB funding consideration. (See Section 16 for a sample format.)
    - Demonstrate landowner willingness to seek funding for the project. Submit a Landowner Willingness Form with your completed application. (See Section 16 for a sample format.)
- ▷ Describe your approach to the long-term stewardship of the facility.
- ▷ When known, identify the staff, consultants, and subcontractors that will be designing and implementing the project, including their names, qualifications, roles and responsibilities. If not yet known, describe the selection process.

V. TASKS AND TIME SCHEDULE

List and describe the major tasks and time schedule you will use to complete the project. Describe your experience with managing this type of project.

VI. CONSTRAINTS AND UNCERTAINTIES

State any known constraints or uncertainties that may hinder successful completion of the project. Identify any possible problems, delays, or unanticipated expenses associated with project implementation. Explain how you will address these constraints.

14d. Barrier Information Forms - Cover Sheet

Purpose of Forms

The purpose of the Barrier Evaluation (BEF) and Expanded Barrier Evaluation (EBEF) forms are to document information on fish passage barriers submitted to Lead Entities and the Salmon Recovery Funding Board for funding consideration. An updated version of the *Design of Road Culverts for Fish Passage Manual* is available through the WDFW website at http://wdfw.wa.gov/hab/engineer/cm/. The WDFW technical staff is available to provide assistance to applicants. For barrier evaluation questions contact Dave Caudill at WDFW (360) 902-2486 or caudidsc@dfw.wa.gov. For engineering design questions or technical assistance contact Patrick Powers at WDFW (360) 902-2546 or powerpdp@dfw.wa.gov. The SRFB strongly encourages applicants to take advantage of this service.

In an effort to simplify the information being collected and make it valued added for the applicant the SRFB has elected to try a new approach by utilizing the same but slightly modified forms from the Family Forest Fish Passage Program. These forms are divided up into basically three steps: 1) Barrier determination – is the structure a fish passage barrier and is the stream fish bearing. This initial determination is captured on the Barrier Evaluation Form (BEF). 2) Background information – if the site is determined a barrier and the stream fish bearing then utilized the Expanded Barrier Evaluation Form to capture detailed information including fish species and use, site information, upstream and downstream channel conditions, and potential habitat gain if the barrier was corrected. 3) Site Visit Documentation and Correction Alternative – This step will help capture important information from site observations by developing conceptual alternatives and rough cost estimate(s).

No substitute for local knowledge:

Your help in providing information on a project is greatly appreciated. There is no better information source than a landowner, applicant, or local habitat biologist who lives or works in a particular watershed. The WDFW will develop a site map of each project site listing the species utilizing the stream system, the amount of habitat opened above the barrier the distance to the next known man-made barrier or natural barrier gradient break. If you would like this information for completing your application please contact your SRFB Project Manager.

Form Descriptions

Barrier Evaluation Form (BEF) - Provides the basic information for identifying the location, landowner, evaluator contact information, and the barrier measurements. The three key pieces of information are: 1) Is the stream fish bearing (anadromous or resident) 2) Is the structure a fish passage barrier (determined by the Washington State fish passage criteria) and 3) Landowner identification. The evaluator should have professional training to determine if the structure is a barrier and if the stream is fish bearing.

Expanded Barrier Evaluation Form (EBEF)

Part 1 – Provides background information on the local watershed. This includes upstream and downstream barriers, fish use at the site, and the description of the habitat that will be made available by the barrier correction.

Part 2 – Site visit documentation and correction alternatives. This section should be filled out by a professional field biologist or engineer with experience in fish passage design and implementation. The cost estimates and correction option is a rough estimate for the purpose setting funding priorities. Final design and implementation are subject to permitting requirements.

Instructions for Developing the Barrier Evaluation Forms – Following each form are instructions explaining the detail needed. If you have questions please contact your SRFB Project Manager or the WDFW at the numbers listed above.

14e. Fish Passage: Barrier Evaluation Form

Location Information

GPS Location: In decimal degrees using 9 decimal places. State Plane South, WGS84	Latitude:	Longitude:	
¼ Section:	Section:	Township:	Range: □ East □West
County:		Parcel:	
Stream Name:		WRIA#:	
Tributary To:		Stream #:	
Driving Directions:			

Landowner Information

Landowner Name:			Landowner Agent:		
Mailing Address:			Mailing Address:		
City:	State:	Zip:	City:	State:	Zip:
Phone:	Fax:		Phone:	Fax:	
Cell:	Email:		Cell:	Email:	

Investigator

Investigator Name:		Affiliation:	
Mailing Address:			
City:		State:	Zip:
Phone:	Fax:	Cell:	Email:

Barrier Measurements (in meters)

Is the stream fish bearing? □ Yes □ No □ Unknown Species, if known _____

Is this culvert a fish passage barrier? □ Yes □ No □ Unknown □ Level B needed

Level A analysis completed: □ Yes □ No If yes, attach. If no, complete below:

Shape:	Material:	Span/Diam:	Rise:	Water depth in culvert:	Length:

Streambed material throughout culvert: □ Yes □ No □ Unknown	Toe width (outside of culvert influence):
Outfall drop:	Culvert slope(%):
How did you calculate culvert slope? □ Handheld laser level □ Transit □ Other (describe)	
Road width:	Road fill height over top of culvert (D.S. end):
Velocity:	Apron: □ None □ Upstream □ Downstream □ Both
Problem with culvert: Outfall drop/Slope/Velocity/Depth:	Percent Passability: □ 0% □33% □67% □ 100%
Comments:	

Attachments

□ Photos □ Level A Assessment □ Site Map □ Other □ Additional Comments

Instructions for Developing the Barrier Evaluation Form

Purpose of Form: Barrier Evaluation Form
Provides the basic information for identifying the location, landowner, evaluator contact information, and the barrier measurements. The three key pieces of information are: 1) Is the stream fish bearing (anadromous or resident) 2) Is the structure a fish passage barrier (determined by the Washington State fish passage criteria) and 3) Landowner identification. The evaluator should have professional training to determine if the structure is a barrier and if the stream is fish bearing.

How to fill out this form
Following are definitions, descriptions, and standards for information to be included in the Barrier Evaluation Form. This form has five sections, which describe location, landowner, investigator, barrier measurements, and attachments.

General Location Information
This section describes the barrier location including GPS coordinates in decimal degrees using state plane coordinates, Washington South NAD27, stream name, and detailed driving directions to the site.

Landowner Information
This section provides landowner contact information. If the landowner is working through a private consultant or other representative, please provide this contact information.

Investigator Information
Include the contact information of the person preparing the evaluation and making the initial barrier determination.

Barrier Measurements
Level A Analysis – This refers to the Washington State Department of Fish & Wildlife protocol described in ***Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual***, WDFW, August 2000.

Culvert Shape – Describe culvert shape (circular, rectangular, arch, elliptical, bottomless, or other).

Culvert Material – Describe culvert material (corrugated metal, concrete, smooth plastic or metal).

Culvert Size -

- Diameter: indicate diameter for circular culverts.
- Rise: indicate the dimension from culvert invert to crown of non-circular culverts.
- Span: indicate the maximum width of culvert for non-circular culverts.

Culvert Length - Indicate culvert length including aprons, if present.

Outfall Drop – Measured water surface to water surface.

Culvert Slope - Use standard survey methods to determine the horizontal length of the culvert including aprons, and the difference between its invert elevations expressed in a percent slope. If slope varies within culvert, provide the maximum reading. Describe the slope from the surveyed profile. Attach profile if available. Indicate which tool was used in determining culvert slope (Laser level, transit, other). To calculate % slope of the culvert use the following formula: (Upstream Invert Elevation – Downstream Invert Elevation / Culvert Length) * 100.

Stream Bed Material Within Culvert - Indicate whether streambed material is present inside the culvert.

Toe Width – The average width of the streambed (toe width). Measured outside the influence of the culvert. Used in conjunction with the culvert span to calculate Culvert Span to Streambed Width Ratio.

Road Width – Measurement should include shoulders.

Road Fill - Measure height of material from top of culvert to top of fill at downstream end.

Velocity – Field estimate of water velocity through the culvert in meters per second. Use flow meter or three-chip method. Informational. Optional.

Percent Passability – Based on professional judgment. Please discuss details in comments if a partial barrier.

Attachments. To aid in the evaluation and understanding of the barrier, please attach labeled photographs of the culvert site, including the culvert outfall and any other representative locations, with scale provided. Also attach a 1:12,000 topographic map of the project site, and the Level A assessment, and culvert survey profile, if available.

Comments: Provide any additional information that should be considered such as: culvert condition, fish use/observation, and site conditions.

14f. Fish Passage: Expanded Barrier Evaluation Form

Project Name: Sponsor:

Part 1. Background Data Assessment

Attachments:

- □ Barrier Evaluation Form for project site
- □ Map – Basin area map showing fish use, other known barriers, gradient and basin area. (WDFW generated)
- □ Surrogate PI #_____ (attach) □ PI# _____ (attach if available)

Watershed Information

Basin area: _____ Amount of habitat which would be made available upstream: _____(m)

Has a barrier inventory been conducted in the watershed? □ Yes □ No If yes, list source and date completed:

Are there downstream barriers? □ Yes □ No If yes, describe. List source; use separate sheet if necessary.

Are there upstream barriers? □ Yes □ No If yes, describe. List source; use separate sheet if necessary.

Has the stream been walked? □ Yes □ No If yes, information source:

Fish Species/Use

Mapped Species: □ bull trout/Dolly □ Chinook □ chum □ coho □ cutthroat □ pink □ resident trout □ sockeye □ steelhead

Information source:

Current fish use downstream and upstream from barrier (include source of information):

What species and life history stages might use the habitat made accessible by the project?:

Provide a qualitative description of habitat that will be made available by barrier correction, if available. Include source of information:

Part 2. Site Visit Documentation & Correction Alternatives

Site Information

Date of visit:	Recent precipitation:

☐ Photographs attached of barrier inlet and outfall, upstream habitat, downstream habitat, and road.

Bankfull width (outside of influence from the culvert):

Stream flow: ☐ Perennial ☐ Intermittent ☐ Unknown Source of information:

Flow conditions: ☐ low ☐ moderate ☐ high	Utilities crossing: ☐ Yes ☐ No ☐ Unknown

Road description/condition (county road, private driveway, access):

Fish observed on site:

Upstream Habitat/Channel

Approximate channel slope: _____% (outside of culvert influence)

Dominant substrate: ☐ sand (<.20") ☐ gravel (.20"–3") ☐ cobble (3"-12") ☐ boulder (>12") ☐ bedrock

Additional upstream information, habitat description, other site conditions or concerns:

Downstream Habitat/Channel

Approximate channel slope:_____% (outside of culvert influence)

Additional downstream information, habitat description, other site conditions or concerns:

Correction Alternatives

Alternatives to consider – *Using your best professional judgment provide one, two, or even three alternatives to consider. Please recognize landowner desires or concerns, potential sponsor and their capabilities, and state fish passage requirements. See the example on the following pages.*

Alternative 1 –

Alternative 2 –

Alternative 3 -

Continued next page

Continued from previous page

General recommendation *– Provide a one or two paragraph recommendation for this site. Note any special concerns discovered during the site visit. In some situations a preliminary design may have already been completed or design concepts generated. If this is the case please include this information.*

Please see the example in the next section

Rough cost estimate* - The purpose of the rough cost estimate is to provide a project specific estimate to establish a funding level.

Culvert Replacement – Alternative #___

Permitting/Oversight:	$
Engineering:	$
Materials:	$
Construction:	$
Total	**$**

* This estimate is provided as a rough approximation of project costs; actual costs will vary depending on specifications identified during project design.

Notes:

Instructions for developing the Expanded Barrier Evaluation Form

The purpose of this form is to provide additional information on potential high priority barriers for funding consideration by the Salmon Recovery Funding Board. The form is broken into two parts:
Part 1 – Provides background information on the local watershed. This includes upstream and downstream barriers, fish use at the site, and the description of the habitat that will be made available by the barrier correction.
Part 2 – Site visit documentation and correction alternatives. This section should be filled out by a professional field biologist or engineer with experience in fish passage design and implementation. The cost estimates and correction option is a rough estimate for the purpose setting funding priorities. Final design and implementation are subject to permitting requirements.

Part 1. Background Data Assessment

This portion of the EBEF is to be completed in the office using available information. It will be used to make an initial assessment of the potential benefit of correcting the barrier based primarily on the number of fish species using the stream, and the amount of habitat which would be made accessible.

Attachments

- *Initial Barrier Evaluation Form* – This is the completed form previously submitted for the site.
- *Maps* – The Fish Passage Team will coordinate the development of a standard site map along with a larger scale watershed map.
- Surrogate PI # - *This is the map-based Priority Index calculated for this project based on the EBEF data.*
- PI # - *A Priority Index should be provided if one is available.*

Watershed Information

- *Basin area* - This is the area upstream from the project which is drained by this tributary.
- *Barrier inventory* – This indicates whether a barrier inventory has been conducted in the area.
- *Known Upstream and Downstream Barriers* - The purpose of this section is to provide documentation on the known upstream and downstream barriers. If barriers are present, indicate whether they are partial or total, if known. Discuss whether they are scheduled for correction, and if so, in what time frame. List the source of information.

Fish Species/Use:

- *Mapped species* – Check the box next to the species that are documented as utilizing the habitat. Include source of information.
- Current fish use – *Describe any other available information regarding fish use upstream and downstream from the barrier; include information source.*
- *Potential fish use* – Describe to the extent known which fish species and life stages would be expected to use the habitat made accessible by the project.
- *Qualitative habitat description* – Describe habitat quality upstream from the project to the extent known, and include information source.

Continued on next page

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Part 2. Site Visit Documentation and Correction Alternatives

This portion of the EBEF will be completed for those projects which are determined to be of potential high benefit to fish resources based on the information provided in Part 1. The completed EBEF will be used by evaluators to understand the project being proposed.

Site Information

- *Date of observation* – This is the date of the field visit.
- *Photographs* – The Fish Passage Team in coordination with local staff will photo document the site. Standard photos will include the barrier outfall and inlet, upstream habitat, downstream habitat, and road. Pictures should be clearly labeled describing what the photo is showing, and include scale.
- *Recent precipitation* – Describe recent weather events which may affect observed stream flow.
- *Bankfull width* - For the purpose of culvert design, the channel bed width is defined as the width of the bankfull channel. The bankfull channel is defined as the stage at which water just begins to overflow into the active flood plain. Bankfull width then requires a floodplain or a bench that is not present in many channels. In those cases, bankfull channel is determined by features that do not depend on a flood plain similar to those used in the description of active channel and ordinary high water (generally the lowest point at which perennial vegetation grows on the streambank).
- *Stream flow* – Provide a general assessment from local knowledge as to whether the stream flow at the site is perennial or intermittent and note whether it is spring fed.
- *Flow conditions – This refers to the flow observed on the day of the visit.*
- *Road description/condition* – Provide a brief description of the road surface, use, condition, etc..

***Fish observed on site* – Note any species and life stage of fish observed on site at the time of the field visit. This is a visual check of the stream.**

Upstream Habitat:

- *Approximate channel slope* – This is measured outside of the culvert influence.
- *Streambed material* - Identify the size and type of bed material present. Categorize it as: fines, sand, gravel, cobbles, boulders, bedrock etc..
- *Additional information* – Provide any additional upstream information that may be important to the project.

Example of a Correction Alternative – Approximate level of detail

Correction Alternatives

Alternatives to consider 1,2,3,.....etc....

Example

Alternative 1 – Abandon the spur road and pull the barrier culvert. This would be the least expensive of the options but would eliminate road access to approximately 12 acres on the south side of the property. The landowner is not interested in this.

Alternative 2 – Replace the existing barrier culvert with a round pipe 6 feet in diameter using the no slope option. Actual pipe size would be determined during the design process but based on the stream size and other factors a pipe diameter in this range should meet fish passage requirements.

General recommendation

This project is relatively straightforward. The stream is low gradient, less than 1.5 % throughout the reach. The stream is spring fed flowing year-round and supports a healthy population of coho and sea-run cutthroat. During the design process care should be taken in calculating high fish passage flow to select the proper culvert size and type that meets fish passage criteria. This is a relative large basin area for the size of the stream. During the site visit there was some evidence of high peak flows.

Basic engineering for the site is recommended. This should include a site plan and profile with preliminary culvert alignment, grade, size and shape, water surface profiles, road section, etc.. Stream slope calculations, Manning's equation calculations for low, high flow, 100 year flood for proposed culvert and stream sections should be included.

Rough cost estimate*:

Culvert Replacement – Alternative #2

Permitting/Oversight:	$ 5,000
Engineering:	$ 4,500
Materials:	$ 10,500
Construction:	$ 23,000
Total	**$ 43,000**

* This estimate is provided as a rough approximation of project costs; actual costs will vary depending on specifications identified during project design.

14d. Evaluation Proposal
Barrier Inventory Projects

Applicants must respond to the following items. The local citizen and technical advisory groups will use the evaluation proposal to evaluate your project. Applicants should contact their lead entity for additional information that may be required.

Up to eight pages may be submitted for each project evaluation proposal.

(SUBMIT INFORMATION VIA PRISM ATTACHMENT PROCESS OR ON PAPER)

For prioritization questions or technical assistance, contact Dave Caudill at Department of Fish and Wildlife (WDFW) at (360) 902-2486 or at caudidsc@dfw.wa.gov.

I. BACKGROUND

Review the guidance in Section 14e of this application.

Describe the fish resources (number of species or unique populations), the current habitat conditions, and other current and historic factors important to understanding this project. Be specific—avoid general statements. When possible, document your sources of information by citing specific studies and reports.

II. PROJECT SCOPE OF WORK

Using the guidance in Section 14e, provide the following information.

- o Goal(s) of the project.
- o Inventory scope.
- o Methodology to be used for estimating potential habitat gain.
- o Geographic area to be covered.
- o Inventory crew.
- o Inventory equipment.
- o Landowner permission.
- o Data management.
- o Products to be produced.

III. PROJECT APPROACH

- ▷ List the individuals and methods used to identify the project and its location.
- ▷ Explain how the results of the assessment will lead directly to projects that benefit salmonids or how the assessment fills a data gap identified as a priority in the lead entity's strategy.
- ▷ Describe the project design and how it will be implemented.
- ▷ Explain how the project's cost estimates were determined.
- ▷ List project partners. When appropriate, include a letter from each participating partner briefly outlining its role and contribution to the project. (See Section 15 for a sample format.)
- ▷ List all landowner names (if the assessment covers large stream reach or an entire subbasin, then the landowner willingness forms are not required). Include a signed form from each landowner acknowledging their property is proposed for SRFB funding consideration. (See Section 16 for a sample format.)

- ▷ Describe how the assessment addresses the stages and elements in *Guidance on Watershed Assessment for Salmon* (Joint Natural Resources Cabinet, May 2001). See Manual 18b, Appendix E.
- ▷ When known, identify the staff, consultants, and subcontractors that will be designing and implementing the project, including their names, qualifications, roles and responsibilities. If not yet known, describe the selection process.

V. TASKS AND TIME SCHEDULE

List and describe the major tasks and time schedule you will use to complete the project.

VI. CONSTRAINTS AND UNCERTAINTIES

State any known constraints or uncertainties that may hinder successful completion of the project. Identify any possible problems, delays, or unanticipated expenses associated with project implementation. Explain how you will address these constraints.

14e. WDFW Fish Barrier Inventory Guidelines

Applicants submitting Fish Barrier Inventory project should read this material to understand data collection methods and protocols.

For technical assistance and training, contact Dave Caudill at Department of Fish and Wildlife (WDFW) at (360) 902-2486 or at caudidsc@dfw.wa.gov.

The purpose of this guide is to assist you with the preparation of a scope of work for fish barrier inventory projects funded by the Washington State Salmon Recovery Funding Board with technical assistance provided through the Washington State Department of Fish & Wildlife. Before undertaking a project of this nature it is critical to read and understand the ***Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual***, WDFW, August 2000.

The project sponsor will be required to meet the data collection methods and protocol outlined in this manual. A comprehensive barrier inventory can lead to filling important data gaps in the identified inventory area. Inventory projects can establish a foundation for creating a systematic Fish Passage Correction Program which addresses fish passage issues through partnerships of agencies, landowners and other interested parties.

The following list of elements should be incorporated into the project scope.

Develop goal(s) for the Project

The preference is to inventory and prioritize all human-made fish passage barriers (including culverts, dams, fishways, diversions and other structures) in the watershed. This would include both anadromous and resident fish. However, it is recognized that limited resources sometimes only allow for inventory work in the anadromous zone. The goals of the project should be clearly identified in the scope of work. Detailed objectives should be developed supporting the goals of the project.

Inventory Scope

Two basic types of inventories are currently available: the stream-based approach and the road-based approach. In the stream-based approach, it is preferred that all human made features (e.g., culverts, water diversions, dams and fishways) are recorded and evaluated. A stream-based approach can be watershed-based or jurisdictional based. In a watershed-based inventory, the entire fish-bearing zone within the watershed should be walked. In a jurisdictional inventory, the section(s) of the stream of the given ownership should be walked. In the road-based approach, only features that are encountered at road crossings (usually culverts) are recorded and evaluated. Road-based inventories can also be watershed-based or jurisdictional. Road-based jurisdictional inventories include inventories on county or state highways where the goal is for a jurisdiction to identify fish passage problems associated with their road system. A road-based watershed approach has been employed by some groups to inventory all culverts in the watershed by driving the roads encountered. This method results in a fairly complete culvert inventory but invariably some roads, and therefore, some culverts and other features, are missed. **The only way to ensure that all human-made features are encountered is to walk the stream.** ***Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual, Page 5, August 2000.***

Walking the stream has many potential side benefits for your fish passage program. Mainly you will be notifying all the landowners along the stream explaining the project and asking for permission to walk the stream. This form of outreach is essential in beginning a rapport with landowners that can lead to future projects. Landowners generally have a keen interest in salmon recovery and can provide first hand observations of fish use in the stream, problem barriers, and usually a history of the site. In recent surveys over 95% of all landowners provided access to the stream for survey crews (Pierce Conservation District, 2000).

Estimating the Potential Habitat Gain

Once the human-made feature has been identified as a barrier, it is necessary to assess the potential habitat gain that would be achieved if the barrier were corrected. Three methodologies can be used to describe the estimated habitat gain:

(1) Complete a full physical survey.
(2) Reduced sampling full survey (RSFS) involves using the same methodology as the full survey except the sampling frequency is reduced.
(3) Expanded Threshold Determination (ETD) requires sampling a smaller section of stream and using the data, along with additional information, to estimate the potential habitat gain.

Once the potential habitat gain has been quantified, then it is possible to prioritize the project. The Priority Index (PI) takes into account the habitat gain, the mobility and health status of the fish stocks that would benefit from increased access to the habitat, and the projected cost of the project. The PI is a valuable tool to be used with other relevant factors to select projects for corrections.

Developing PI's for potential projects can be time consuming, however, it is important information to justify the importance of the project.

Geographic Area/Fish Bearing Criteria

Specifically delineating the geographic area to be covered is critical in developing a project cost estimate and scope. The *Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual*, WDFW, August 2000, provides guidance on determining fish bearing criteria. Satisfaction of any one or more of the following criteria qualifies a water as fish bearing. If none of the criteria are met, the water is considered non-fish bearing.

Fish Bearing Criteria

- Water courses having an average ordinary high-water widths in excess of 0.6 meters (2 feet) in Western Washington and 0.9 meters (3 feet) in Eastern Washington provided the stream gradient is less than 20 percent.
- Water courses identified in WDFW's Priority Habitats and Species (PHS) database as fish bearing.
- Water Cources listed as Type 1, 2, 3 or 4 on the Department of Natural Resources Water Type Maps.
- Water courses listed as fish bearing in "*A Catalog of Washington Streams and Salmon Utilization" (Williams, et al. 1975 and Phinney and Bucknell 1975).*
- Water courses listed as fish bearing on StreamNet (http://www.streamnet.org)
- Water courses with documented salmonid use determined by visual observation, eletrofishing, or verification by local biologists.

Fish Distribution

The geographic scope of the project may depend on the fish distribution if only focusing on the anadromous sections of the watershed. Fish distribution can be defined two ways: 1) Known distribution, or 2) Expected distribution (based on stream gradient within survey reaches, historical use documented, and expected use if all human-made barriers are made passable).

Distribution maps for some watersheds have been created through the Limiting Factors Analysis work through the Washington State Conservation Commission. These may be available through the Salmon and Steelhead Habitat Inventory and Assessment Program (SSHIAP) (for more information go to www.wa.gov/wdfw/hab/sshiap).

Inventory Crew

This is the most important part of the project. A well-trained crew is essential for a successful project. Typically a crew of two with a part-time project manager is adequate for most situations. A field crew with background in salmon biology and previous field survey experience is very useful for a barrier inventory project. Recently graduated college students with a major in fisheries or natural resources can be ideal candidates if trained properly. Existing in-house staff with experience in field inventory work and the proper training can also be successful. Inventory work is tedious. It is important that the crew is able to work together and have a positive attitude toward salmon recovery work. If you are hiring new

people compensate them at a professional rate. You may be better off to hire "overqualified" personnel. Questions to consider for the project include:

1) Utilize existing staff or
2) Hire project positions (temporary employment) or
3) Contract work to another organization or consultant.

In your scope of work outline your crew arrangement. It is important to set up a systematic plan for the inventory work. Which sub-watersheds will be completed first, second, etc. Plan for important milestones and check with your technical resources to insure completeness. This may include data transfer to WDFW, basins completed, maps generated, Priority Index surveys completed. Always review your work.

A formal training will be provided by the WDFW. This three-day training combines formal classroom lecture with in field experience. This will be required in the contract agreement. On-going technical assistance will be provided by the WDFW staff and to a lesser extent your IAC/SRFB Project Manager.

Safety Considerations – Safety considerations will always override the data collection protocol outlined in the *Fish Passage Barrier and Surface Water Diversion Screening and Assessment and Prioritization Manual*, WDFW, August 2000. Remember not to enter culverts, fishways, screening facilities` to collect data. When measuring the water depth inside the culvert, stand on the downstream end of the culvert and measure the depth an arms length inside the culvert. Do not evaluate WSDOT highway crossings. Contact Dave Caudill at Department of Fish and Wildlife (WDFW) at (360) 902-2486 or at caudidsc@dfw.wa.gov for assistance. WDFW staff have experience training to inventory high volume roadways. Always use extreme caution when working in and around the stream due to the instability of stream banks and the slippery nature of the streambed. It is also recommended that eye protection be worn by field personnel due to the risk of eye injury from streamside vegetation (Page 7 WDFW Manual).

Supplies and Equipment

When developing your project budget or scope of work address the following items (see attached equipment list for additional information). Not all the items listed are eligible for SRFB reimbursement.

- ▷ Vehicle – Most inventory projects have found a four-wheel drive vehicle to be useful especially when inventorying areas at higher elevations in snow prone areas. If you will need a vehicle for your project don't overlook state surplus vehicles. Non-profits and governmental organization are eligible to purchase these vehicles before they go to auction. This can save funds and you can purchase a reasonable vehicle.
- ▷ Laser Level – Contact WDFW for information about the Laser Level equipment they use for culvert evaluations.
- ▷ GPS receiver – Contact WDFW for information about the GPS instrument they use for fish passage inventory work.
- ▷ Database – The WDFW will provide you with a database at the time of training.
- ▷ Field Forms - field forms for site and feature data, and habitat assessment forms are found in Appendix A of WDFW's Fish Passage Barrier and Surface Water Diversion Screening Assessment and Prioritization Manual (located at http://wdfw.wa.gov/hab/engineer/mnl2000.pdf).
- ▷ Digital photos – may be taken with a digital camera, or, photos, negatives or slides may be scanned and saved in an electronic format.
- ▷ Additional Inventory Gear Needed for Each Crew
    - o Metric stadia rods (one per crew),
    - o Clinometers (1 per person),
    - o Hip chain (1 per crew) and string,
    - o Surveyor's flagging tape,
    - o Write-In-The-Rain field notebook and pencils,
    - o Flashlights (1 per crew, optional),
    - o Two-way radios,
    - o Cell phone,
    - o Gravel probe,
    - o Shovel, and

- Protective eye glasses (1 pair per person).

Landowner Permission

Respect private property. Prior to conducting fieldwork, always obtain landowners' permission to enter private property. When scheduling fish passage inventory and habitat assessment work with field crews, applicants should provide staff with written access authorization prior to the planned site visit. Written authorization should be obtained from the property owner, to visit property for the purposes of conducting fish passage evaluation and habitat assessment. The letter should include the name of the county, the section, township, range, and the property owner's address and telephone number. The property owner must state in the letter that he or she is allowing your staff onto the property for the purpose of a fish passage inventory and/ or habitat assessment. You may use the attached sample form letter, for written permission for temporary access; send it to the landowner with a self addressed, pre-paid mailer envelope.

Technical Guidance

Support from local fish experts is an important part of making the project successful. It may be beneficial to set up a "Fish Passage Committee" for your project. Quarterly interaction throughout the project period with committee members is an effective way of updating project partners about progress. This is also a good opportunity to seek input and guidance on technical issues. Keeping local experts informed increases the likelihood that the information will be used in a proactive fashion.

Project Evaluation Meetings

In order to facilitate an exchange of information and provide constructive feedback on the inventory project the SRFB and WDFW will meet with the project sponsor at least two times over the course of the project to evaluate progress. Scheduling arrangements can be made through your SRFB Project Manager.

Coordination

Fish Passage Inventory Projects fill important data gaps in Limiting Factors Analysis and Lead Entity Strategies. It is important to provide this information to the LE as well as other potential project sponsors and landowners of barriers. It is important to have the project manager (usually someone other then the field crew) disseminate the information to WDFW Habitat staff, who will review data, provide feedback and offer technical assistance, if needed. Fish passage inventory data will be stored in as statewide database. WDFW will then disseminate data to project partners, Lead Entity citizen and technical committees, and the contact person for SRFB, WDFW WST's, SSHIAP and others. The project manager would usually take the lead in developing a system to secure landowner permission, project reporting, project evaluation/reporting, data transfer, and data quality and control.

Data Management

a. Database Management. Fish passage inventory information (site information, feature data, habitat assessment and priority index) should be entered into the WDFW database or equivalent on a regular basis. Database should be electronically backed up at least weekly.

b. Mapping. GPS coordinates for sites inventoried can be mapped using ESRI ArcView or ArcExplorer programs. ArcExplorer is a free, shareware program that can be downloaded from http://www.esri.com/software/arcexplorer/.

c. Data Distribution – Only after WDFW review should data be distributed. WDFW will share the data with SSHIAP. The sponsor is strongly encouraged to share data with local sponsors and landowners.

Products

Depending on the goals and objectives of your project you will want to specifically identify the products the will be produced has a result of the inventory work. SRFB requires that inventory data be transferred to the WDFW database. Sponsors are encouraged to make the data available to anyone and share the data with the local organizations, tribes, landowners, and other project sponsors. Specific landowner site information should not be distributed, only stream name and barrier location.

There are three main products that should be produced 1) Database (Survey Information, may include photographs) of Fish Passage Structures in a given watershed and a determination if it is a barrier, 2) Report of findings, maps, 3) Potential project list (Top Ten report).

Updating Inventory/Monitoring Partial Barriers

The SRFB and WDFW encourage the sponsor to think about how the inventory will be updated and used in the future. Completing a comprehensive report highlighting the priorities and mapping the known barriers is a crucial step in developing recovery projects. It is hoped that these inventory projects will be updated periodically has barriers are retrofitted or eliminated. This could also serve has an important piece of monitoring information used to evaluate known barriers until they can be fixed.

14f. Culvert Evaluations

Necessary equipment for conducting culvert evaluations

(Level A and Level B Assessment)

Equipment	Used For	Approximate Cost
Stadia Rod (Metric; 7.1 m length)	Physical culvert measurements	$180.00
Impulse 200 Laser	Determining culvert length and slope	$2875.00
Monopod	Stabilizes Impulse 200 laser unit.	$105.00
Yolk Assembly	Connecting laser unit to monopod	$125.00
GPS Reciever	Determining features geographic location.	Prices vary
Surveyors Tape (30m)	Level B hydraulic analysis.	$25.00
Retro-reflective safety vest	Improved safety	Varies
Water resistant camera (standard or digital)	Taking photos of barrier features (culverts, dams, fishways, other)	Varies
Two-way radios	Communication	$50-$100
Flashlight	Looking inside culverts	Varies
Tile Probe (gravel probe)	Locating culvert bottom through bed material	$28.90

14g. Physical Habitat Surveys

Necessary equipment for conducting physical habitat surveys.

Equipment	Used For	Approximate Cost
Hip Chain box	Measuring Distance	$120.00
Biodegradable string for hip chain	Used with hip chain box.	$4.75 per roll
Clinometer	Obtaining stream gradients	$105.50
Mercury-free Thermometer (Celsius)	Recording water temperature	$10.00
Stadia Rod (Metric; 7.1 m length)	Measuring stream widths, depths, culvert dimensions, etc.	$180.00
Stop Watch	Taking flow measurements	Varies
Write-In-The-Rain field notebook	Note taking	$10.00
Field Guides*	Identifying species	Varies
Polarized sunglasses and/or safety glasses	Eye protection and to aid in stream observations.	Varies
Hip boots or waders	Stream walking	$50 and up
Orange surveyor's vest	For safety, visibility and carrying equipment	$40-$90
Leather gloves	Personal protection	Varies

*Recommend: for juvenile salmonids, Field Identification of Coastal Juvenile Salmonids, by W.R. Pollard et al, 1997, Harbour Publishing; for Washington salmonids and other fish, Inland Fishes of Washington, by R.S. Wydoski and R.R. Whitney, 1979, University of Washington Press.

15. Project Partner Contribution Form

Project Partner:

Partner Address:

Contact Person

☐ Mr. ☐ Ms. Title

First Name: Last Name:

Contact Mailing Address:

Contact E-Mail Address:

Description of contribution to project:

Estimated value to be contributed: $_____

_____ _____

Partner's signature **Date**

16. Landowner Willingness Form

Landowner Information:

Name of Landowner:

Landowner Contact Information:

☐ Mr. ☐ Ms. Title

First Name: Last Name:

Contact Mailing Address:

Contact E-Mail Address:

Property Address or Location:

I certify that _____ is the legal owner of property described in this grant
(landowner or organization)
application to the Salmon Recovery Funding Board (SRFB). I am aware the project is being proposed on said property. My signature authorizes the applicant listed below to seek funding for project implementation, however, does not represent authorization of project implementation.

_____ _____
Landowner Signature **Date**

Project Applicant Information:

Project Name:

Project Applicant Contact Information:

☐ Mr. ☐ Ms. Title

First Name: Last Name:

Contact Mailing Address:

Contact E-Mail Address:

Lead Entity Organization: